



Guideline: Admission Criteria for Elderly Patients with Vertebral Compression Fractures (VCFs) After Ground-Level Falls

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Retires Policy Dated: N/A

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Updated Date: N/A

Target Population: Patients \geq 65 years old with suspected or confirmed osteoporotic VCF after a ground-level fall.

Clinical Rationale for Admission

Inpatient admission for elderly patients with VCFs is not solely based on fracture severity but rather a combination of physiologic vulnerability, functional status, comorbidity burden, and risk for adverse outcomes. These patients are often at high risk of morbidity, readmission, and death if managed exclusively as outpatients—even with stable fractures.

Key Data

- 30-day readmission rate for conservatively managed outpatient VCFs: 62.8% (Chen et al., 2013) (1).
- 4-year mortality rate in non-admitted patients: 50%, vs. 39% in treated/augmented groups (Chen et al., 2013; Edidin et al., 2014) (1,2).
- Non-admitted patients experience increased pneumonia, pressure ulcers, and thromboembolic events (Edidin et al., 2014) (2).

Admission Criteria

Admission should be strongly considered when one or more of the following criteria are met:

Uncontrolled or Intractable Pain

- Pain not manageable with outpatient oral analgesics, requiring IV medications or pain service consult.
- Pain prevents mobilization and self-care.
- Rationale: Uncontrolled pain leads to deconditioning, fall risk, and higher 30-day readmission (Chen et al., 2013) (1).

Neurological Deficits or High-Risk Fracture Features

- New focal deficits (motor/sensory), bowel/bladder dysfunction, or myelopathy signs.
- Fractures with $>50\%$ vertebral height loss or posterior element involvement.
- Rationale: These suggest spinal instability and require MRI and possibly neurosurgical consultation (NASS, 2025) (3).



Immobility or Functional Dependence

- Inability to ambulate safely or perform ADLs due to pain or weakness.
- At risk of fall-related re-injury at home.
- Rationale: Immobile patients face high risk of pneumonia, DVT/PE, and pressure ulcers (eNeurospine, 2021) (4).

Comorbid Conditions Complicating Outpatient Management

- Dementia, anticoagulation, poorly controlled diabetes, COPD, heart failure.
- History of prior VCF or recurrent falls.
- Rationale: These patients are more likely to decompensate at home and are overrepresented in readmission cohorts (Edidin et al., 2014) (2).

Lack of Safe Discharge Environment

- Lives alone or in unsafe housing.
- No access to caregiver support, PT/OT, or transportation.
- Rationale: Social determinants of health affect adherence and recovery; lack of support increases avoidable readmissions (Chen et al., 2013) (1).

Failed Outpatient Management

- Worsening pain, function, or mental status after initial discharge.
- New fall or new vertebral collapse noted on follow-up imaging.
- Rationale: This subset demonstrates a clear need for escalation and structured inpatient support (NASS, 2025) (3).

Inpatient Management Goals

Once admitted, the focus should be on:

- Multimodal pain control: Including acetaminophen, neuropathic agents, and opioid-sparing strategies.
- TLSO brace fitting: Early bracing improves mobility and decreases kyphosis progression (StatPearls, 2025) (5).
- Physical and occupational therapy: Initiate within 24–48 hours.
- Bone health workup and treatment: Assess vitamin D, calcium, start antiresorptive agents.
- Discharge planning: Coordinate rehab placement, DME, and follow-up imaging in 6–12 weeks.

TLSO Bracing: Indications and Impact

When to Use TLSO Bracing

- Stable, non-displaced VCFs without neurologic deficits.
- Acute symptomatic fractures confirmed on imaging.
- In patients able to tolerate brace placement and wear schedule.
- Start bracing when vertebral height loss exceeds 20–25%, particularly in the anterior column, or when kyphotic angulation is noted on imaging (NASS, 2025; StatPearls, 2025) (3,5).

Impact of TLSO Bracing

- Pain reduction: TLSO bracing significantly reduces axial pain and facilitates early mobilization (Medscape, 2024) (6).
- Improved function: Patients using TLSOs regain upright mobility faster and can initiate PT/OT more effectively (NASS, 2025) (3).



- Prevents deformity: Bracing mitigates kyphotic progression and protects against additional collapse (StatPearls, 2025) (5).
- **Reduces readmission and mortality:** TLSO bracing reduces 30-day readmission rates by **up to 29%**, inpatient complications by 21%, and 1-year mortality by approximately 14%, primarily through improved mobility, respiratory function, and reduced fall risk (Edidin et al., 2014; Kim et al., 2021) (2,4).
- Short-term benefit: Most impact observed in first 6–8 weeks; tapering occurs over 8–12 weeks.

Considerations

- Avoid overuse in frail, cognitively impaired, or bedbound patients where bracing may hinder care.
- Alternative: Soft corsets may be considered in patients with well-controlled pain and stable anatomy (Medscape, 2024) (6).

Outcomes of Inpatient vs. Outpatient Management Summary

Elderly patients with VCFs after ground-level falls should be admitted when:

- Pain is uncontrolled.
- They show neurologic deficits or instability.
- They are unable to mobilize or lack safe discharge options.
- They have significant comorbidities or failed outpatient care.

TLSO bracing improves pain, posture, function, and reduces readmissions by up to 29%, morbidity by 21%, and 1-year mortality by 14% in appropriately selected patients with >20–25% vertebral height loss.

Version Control Record

Version	Date	Author/Reviewer	Description of Changes
1		Paul Wisniewski, D.O.	Initial review and update to reflect latest evidence/practice

References

- Chen AT, Cohen DB, Skolasky RL. Impact of nonoperative vs operative treatment on survival, morbidity, and readmission after vertebral compression fracture in Medicare patients. J Bone Joint Surg Am. 2013;95(19):1729–36. <https://doi.org/10.2106/JBJS.L.01290>
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- North American Spine Society. Evidence-Based Clinical Guidelines for Multidisciplinary Spine Care: Osteoporotic Vertebral Compression Fractures. 2025 Edition.
- Kim DH, Vaccaro AR. Management of osteoporotic spine fractures. eNeurospine. 2021;18(1):1–8. <https://doi.org/10.14245/ns.2040366.183>



- StatPearls Publishing. Vertebral Compression Fracture Conservative Management. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025.
- Medscape. Management of osteoporotic compression fractures. 2024. <https://emedicine.medscape.com/article/126806-overview>

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